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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/562,255

12/21/2005

Michael Andrew Yuratich

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EXAMINER

WRIGHT, GIOVANNA COLLINS

ART UNIT

PAPER NUMBER

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/562,255	<b>Applicant(s)</b> YURATICH ET AL.	
	<b>Examiner</b> GIOVANNA C. WRIGHT	<b>Art Unit</b> 3672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,4-9,33,34,36-43 and 51-63 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 38-43 and 58-63 is/are allowed.
- 6) ☒ Claim(s) 1,4-9,33,34,36,37 and 51-57 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 April 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1,4-9 and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buchanan et al. 20020066568 in view of Eno 5923111 and Kawabata et al. 6025691.

Referring to claims 1,4, 7-8 and 33-34, Buchanan discloses a method of pumping wellbore liquid comprising installing an electrical submersible centrifugal pump ( see fig. 1, at 10) in a wellbore having a AC synchronous permanent magnet motor ( 90, paragraph 0054). Buchanan does not disclose operating the pump at 7000-7500 rpm or the motors is a three phase motor and the three phases are continuously driven. Eno teaches that permanent magnet motors can operation efficiently at higher rpms which allows smaller pump to be manufactured to be installed in a well ( col. 1, lines 25-35). Kawabata teaches three phases are continuously driven by a cyclically smoothly varying non-sinusoidal voltage (see fig. 11, trapezoidal wave) applied to the corresponding motor phase in order help to reduce torque ripples ( col. 12, lines 2-10). As it would be advantageous to save money on material by manufacturing a smaller pump and to reduce torque ripples, it would be obvious to one of ordinary skill in the art at the time of the invention to modify the method disclosed by Buchanan to operate the pump at 7000 –7500 rpm and to have a three phase motor where the three phases are

continuously driven in a cyclically smoothly varying non-sinusoidal voltage in view of the teachings of Eno and Kawabata.

Referring to claim 5, Buchanan discloses recovering the liquid to the surface ( see fig. 1, at arrow pointing to the left).

Referring to claim 6, Buchanan discloses transporting the liquid from a first location ( see arrows at 14) to a second subterranean location ( see arrow at 34).

Referring to claim 9, Buchanan discloses the pump is operative to draw wellbore liquid from a plurality of lateral wellbores in to a central pump ( fig. 9b, paragraph 0048).

2. Claims 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Buchanan et al. 20020066568 in view of Eno 5923111 and Kawabata et al. 6025691, as applied to claim 1 and further in view of Iijima et al. 6462491.

Referring to claim 36, Buchanan does not disclose a power supply of the motor is located at the surface which models operation of the motor and calculates a rotor position of the motor. Iijima teaches a power supply for a motor that models operation of the motor and calculates a rotor position of the motor without sensors (col. 1, lines 5-35). This allows the power supply to be on a surface so operators can see how the motors is operating and reduces the size and cost of the motor by eliminating the need to run sensors downhole. As it would be advantageous to see how the motor is operating and reduce the size and cost of the motor, it would be advantageous to have a power supply of the motor is located at the surface which models operation of the

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motor and calculates a rotor position of the motor in view of the teachings of Iijima.

3. Claims 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Buchanan et al. 20020066568 in view of Eno 5923111 and Kawabata et al. 6025691, as applied to claim 1 and further in view of Endo et al. 4879502.

Referring to claim 37, Buchanan does not a power supply of the motor comprises a variable voltage chopper. Endo teaches that voltage chopper is a known tool for controlling the voltage to a motor (col. 12, lines 40-45). As a voltage chopper is a known tool for controlling the voltage to a motor, it would be obvious to one of ordinary skill in the art at the time of the invention to further modify the method disclosed by Buchanan to have a variable voltage chopper in view of the teachings of Endo.

4. Claims 51-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Buchanan et al. 20020066568 in view of Eno 5923111 and Lamaster 4467261.

Referring to claims 51,52,55,56, Buchanan discloses a method of pumping wellbore liquid comprising installing an electrical submersible centrifugal pump ( see fig. 1, at 10) in a wellbore having a AC synchronous permanent magnet motor ( 90, paragraph 0054). Buchanan does not disclose operating the pump at 7000-7500 rpm or a power supply of the motor comprises a variable voltage chopper. Endo teaches that permanent magnet motors can operation efficiently at higher rpms which allows smaller pump to be manufactured to be installed in a well ( col. 1, lines 25-35). Lamaster teaches it is known in the art for AC motors to have a chopper and an inverter ( col. 1,

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lines 24-29). As it would be advantageous to save money on material by manufacturing a smaller pump and it is known in the art for an AC motor to have a chopper and an inverter , it would be obvious to one of ordinary skill in the art at the time of the invention to modify the method disclosed by Buchanan to operate the pump at 7000 –7500 rpm and a power supply of the motor comprises a variable voltage chopper and inverter in view of the teachings of Eno and Lamaster.

Referring to claim 53, Buchanan discloses recovering the liquid to the surface ( see fig. 1, at arrow pointing to the left).

Referring to claim 54, Buchanan discloses transporting the liquid from a first location ( see arrows at 14) to a second subterranean location ( see arrow at 34).

Referring to claim 57, Buchanan discloses the pump is operative to draw wellbore liquid from a plurality of lateral wellbores in to a central pump ( fig. 9b, paragraph 0048).

### ***Response to Arguments***

5. Applicant's arguments filed 7/1/09 have been fully considered but they are not persuasive. Referring to claim 1, the applicant argues the Kawabata reference does not disclose a non sinusoidal waveform. However, Kawabata discloses a trapezoid wave (see fig. 11) and therefore is non-sinusoidal.

6. Applicant's arguments with respect to claims 51-57 have been considered but are moot in view of the new ground(s) of rejection.

***Allowable Subject Matter***

Claims 38-43 and 58-63 are allowed.

***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GIOVANNA C. WRIGHT whose telephone number is (571)272-7027. The examiner can normally be reached on 7:30-4 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David J. Bagnell can be reached on 571-272-6999. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Giovanna C. Wright/  
Primary Examiner, Art Unit 3672